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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: K. NAKAMURA et al : Art Unit: 1752

Appln. No. : 10/657,509. : Examiner: T.  
Filed : September 8, 2003 : Chea  
Title : SILVER SALT PHOTOTHERMO- :  
GRAPHIC DRY IMAGING  
MATERIAL :  
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DECLARATION

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

S i r:

I, Kiyoshi Fukusaka, hereby declare and say as follows:

1. I am one of the named Inventors in the above-identified Application.

2. I received a Masters Degree in Chemistry from the University of Tsukuba in 1997. Since that time, I have been employed by Konica Corporation (now Konica Minolta Medical & Graphic, Inc.) the Assignee of the above-identified Application. During my employment at Konica, I have engaged in the research and development of photographic materials.
3. I am aware of the fact that the Examiner has rejected the claims in this Application based on a combination of Fukui, Patent Specification 1,543,266 and Oya.
4. I previously submitted a Declaration dated March 22, 2005 (March 2005 Declaration) wherein I tested the material of Fukui against the Invention disclosed in the above-identified Application to demonstrate the difference between the reducing agent of Formula (1) of the present Invention and the compounds of Formula (1) of Fukui.
5. I am aware that the Examiner criticized the March 2005 Declaration since only a compound of Formula (1-1) of the present Invention was used to compare the results of the present Invention against the results in Fukui.

In order to test more compounds that fall within Formula (1) of the present Invention, additional tests had been performed and were reported in a Declaration dated May 9, 2006 (May 2006 Declaration).

6. I am aware of the fact that the Examiner criticized the May 2006 Declaration because (i) the criticality of the molar ratio between the compound of formula (3) to the compound of formula (1) was not shown; and (ii) the compounds of formula (1) that were tested did not have an aryl group as part of the linking group. In order to respond to these criticisms, additional tests have been run and are reported below. These tests were performed by me or under my direct supervision and control.
7. Photothermographic material 1 of Example 1 of Fukui was prepared in accordance with Example 1 of Fukui. It is noted that material No. 1 of Fukui contained a reducing agent labeled 1-1 and that this material does not fall within the scope of Formula (1) of the present Invention. Hindered phenol 2-3\*, used in Example 1 of Fukui, does fall within Formula (3) of the present Invention. In the tests reported herein,

the material prepared in accordance with Sample 1 of Fukui is labeled as Sample 15.

8. Photothermographic material Samples 16-19 were prepared identical to Sample 15, except that compound (1-1) of Fukui was replaced by an equimolar amount of reducing agent (1-1) of the present Invention and amounts of hindered phenol 2-3\* were each varied, as shown in Table 8, attached.
9. A photothermographic material Samples 20-23 were respectively prepared identical to Samples 16-19, except that reducing agent 1-1 of the invention was replaced by reducing agent 1-33 of the Invention, as shown in Table 8, attached.
10. Each of the Samples prepared herein were tested in accordance with the present Invention as recited on pages 124-127 and the results of these evaluations are shown in Table 9, attached.

11. Further, the samples were evaluated with respect to light fastness of image color, in accordance with the method described in U.S. Patent Application Publication US2004/0229175A1, paragraph [0528]-[0534] at page 45. Concretely, thermally developed samples were each attached onto a viewing lantern with luminance of 1000 Lux and allowed to stand for 10 days. The thus aged samples were visually observed and evaluated with respect to change of image color, based on the following criteria, provided that evaluation was made in increments of 0.5:

- 5: substantially no change was observed,
- 4: slight color change was observed,
- 3: image color change and an increase of fog density were partially observed,
- 2: image color change and increase of fog density were considerably observed.
- 1: marked image color change and increase of fog density were observed and unevenness in density was also noted.

The results of these light fastness tests of image color are reported in Table 9, attached.

12. As shown in Table 9, inventive photothermographic material samples of the invention achieved improved photographic characteristics and superior image stability. Specifically, Samples 17 and 18 falling within the claimed range of the molar ratio of 0.001 to 0.2 resulted in superior light fastness of image color, as compared to Samples 16 and 19 falling outside the claimed range thereof. Thus, the criticality of the molar ratio is definitely shown from these results. Similar results were obtained in Samples 20-24, provided that reducing agent 1-1 used in Samples 16-19 was replaced by reducing agent 1-33 containing a phenyl group attached to the linking group of formula (1).
13. It should be noted, however, that in my March 2005 Declaration, I did test compounds with a phenol group as part of the linking group. In Tables 4 and 5 of my March 2005 Declaration, Samples 4 and 6 used reducing agent (f) of PS '266 and reducing agent (f) of PS '266 has a phenol group in the linking group.

14. I find these results to be surprising and unexpected.

I believe that one of skill in the art would likewise find these results to be surprising and unexpected.

15. It is declared by undersigned that all statements made herein of undersigned's own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the U.S. Code; and that such willful false statements may jeopardize the validity of this Application or any patent issuing thereon.

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Kiyoshi Fukusaka

Dated: This day of , 2006.

Encl: Table 8  
Table 9

DCL/mr

Table 8

Sam- ple No.	Reducing Agent ( $\alpha$ ) ( $10^{-1}$ mol/ mol Ag)	Hindered Phenol ( $\beta$ ) ( $10^{-3}$ mol/ mol Ag)	$\beta/\alpha$ (molar ratio)	Remark
15	1-1* (4.0)	2-3* (8.0)	0.02	Comp.
16	1-1 (4.0)	2-3* (0.16)	0.0004	Comp.
17	1-1 (4.0)	2-3* (0.8)	0.002	Inv.
18	1-1 (4.0)	2-3* (64.0)	0.16	Inv.
19	1-1 (4.0)	2-3* (100.0)	0.25	Comp.
20	1-33 (4.0)	2-3* (0.16)	0.0004	Comp.
21	1-33 (4.0)	2-3* (0.8)	0.002	Inv.
22	1-33 (4.0)	2-3* (64.0)	0.16	Inv.
23	1-33 (4.0)	2-3* (100.0)	0.25	Comp.

1-1\*: compound (1-1) of Fukui

2-3\*: compound (2-3) of Fukui

Table 9

Sample No.	Unaged Sample				Image Lasting Quality (810 nm)			Light Fastness of Image Color		Remark
	Fog (810 nm)	Sensitivity (810 nm 814 nm 810 nm 814 nm)	D <sub>Max</sub>	b <sub>ab</sub>	D <sub>Max</sub> (%)	b <sub>ab</sub>	D <sub>Max</sub> (%)	b <sub>ab</sub>	D <sub>Max</sub> (%)	
15	0.230	100	82	-100	80	-190	150	82	160	1.0 Comp.
16	0.180	120	110	122	111	210	102	91	210	2.0 Comp.
17	0.170	123	118	124	121	250	101	96	250	5.0 Inv.
18	0.170	122	117	123	121	255	101	96	255	5.0 Inv.
19	0.200	120	109	122	112	270	102	92	270	2.0 Comp.
20	0.190	118	108	120	110	210	104	90	210	1.5 Comp.
21	0.180	121	115	122	117	245	102	95	240	4.0 Inv.
22	0.180	120	115	122	116	250	102	95	250	4.0 Inv.
23	0.205	119	108	121	110	270	103	90	270	1.5 Comp.